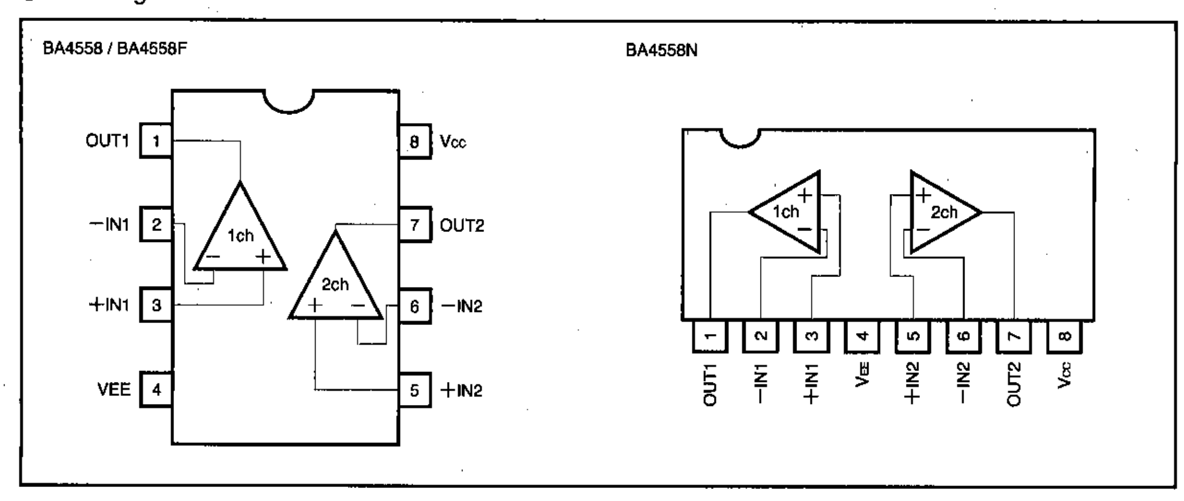
Dual operational amplifier
BA4558/BA4558F/BA4558N

The BA4558, BA4558F, and BA4558N are monolithic ICs with two operational amplifiers featuring low power consumption and internal phase compensation mounted on a single silicon chip. These products offer high speed, a wide band width, and low noise.
Outstanding thermal characteristics and voltage gain band width make these ICs ideal for use in a wide variety of electronic circuits. The BA4558 comes in an 8-pin DIP package and is compatible with the 4558 operational amplifier. The BA4558F comes in an 8-pin SOP package, and the BA4558N in an 8-pin SIP package.

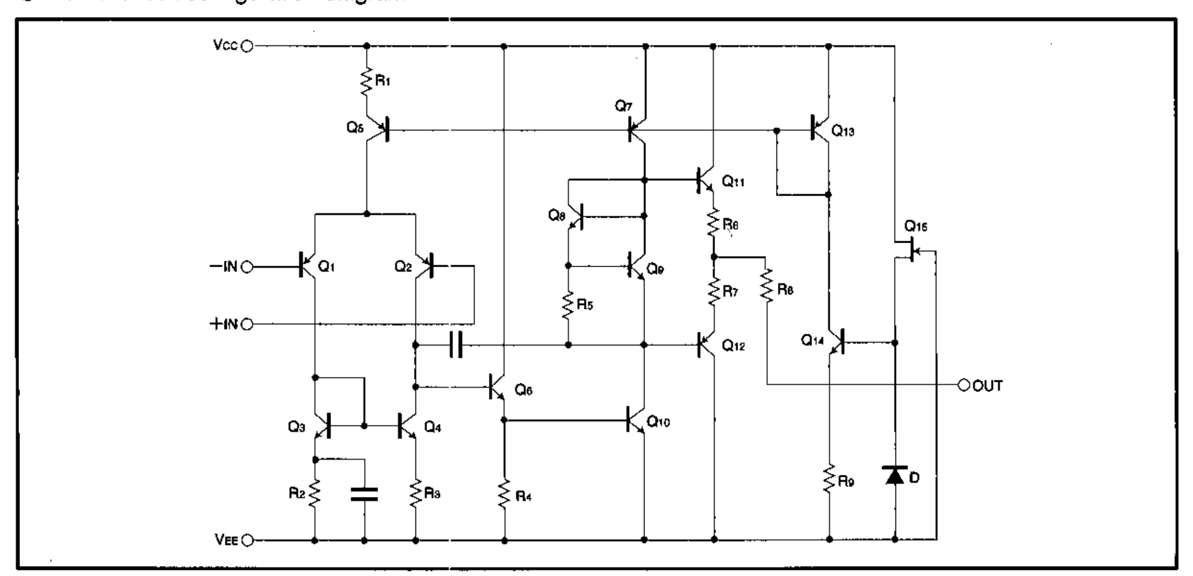
●Applications
Active filters
Audio amplifiers
VCOs
Other electronic circuits

●Features
1) Low power consumption of approximately 50mW (typ.).
2) Built-in output short-circuit protection circuit.
3) Internal phase compensation.
4) No latch-up.
5) Wide range of common mode and differential voltage.
6) High gain and low noise.

●Block diagram



● Internal circuit configuration diagram



● Absolute maximum ratings (Ta=25℃)

Parameter	Symbol	Limits			Unit
		BA4558	BA4558F	BA4558N	
Power supply voltage	V_{CC}	±18	±18	±18	V
Power dissipation	Pd	600*	550*	900*	mW
Differential input voltage	V_{ID}	±30	±30	±30	V
In-phase input voltage	V_I	±15	±15	±15	V
Operating temperature	Topr	−40~85	−40~85	−40~85	℃
Storage temperature	Tstg	−55~125	−55~125	−55~125	℃

* For Pd values, please see Pd characteristic diagram.
Values are those when BA4558F is mounted on a glass epoxy PCB (50 mm x 50 mm x 1.6 mm).

●Electrical characteristics (unless otherwise noted, Ta=25℃, V_{CC}=+15V, V_{EE}=-15V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input offset voltage	V_{IO}	—	0.5	6.0	mV	R_S≦10kΩ
Input offset current	I_{IO}	—	5	200	nA	—
Input bias current	I_B	—	60	500	nA	—
High-amplitude voltage gain	Av	86	100	—	dB	R_L≧2kΩ, Vo=±10V
Common mode input voltage range	V_{ICM}	±12	±14	—	V	—
Quiescent circuit current	I_Q	—	3.0	6.0	mA	R =∞,on All Op - Amps
Maximum output voltage	V_{OM}	±12	±14	—	V	R_L≧10kΩ
Maximum output voltage	V_{OM}	±10	±13	—	V	R_L≧2kΩ
Common mode rejection ratio	CMRR	70	90	—	dB	R_S≦10kΩ
Power supply voltage rejection ratio	PSRR	—	30	150	μV / V	R_S≦10kΩ
Slew rate	S.R.	—	1.0	—	V / μs	Av=1, R_L≧2kΩ
Maximum frequency	f_T	—	2	—	MHz	—
Channel separation	CS	—	105	—	dB	f=1kHz

●Electrical characteristic curves

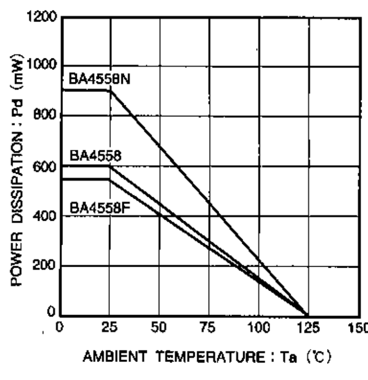


Fig.1 Power dissipation - ambient temperature characteristic

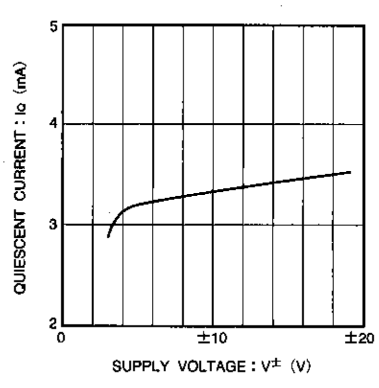


Fig.2 Quiescent current - power supply voltage characteristic

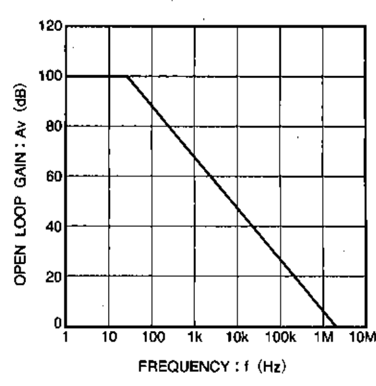


Fig.3 Open loop voltage gain - frequency characteristic

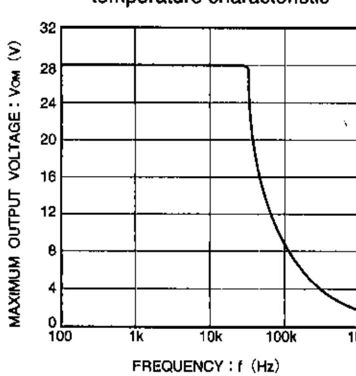


Fig.4 Maximum output voltage - frequency characteristic

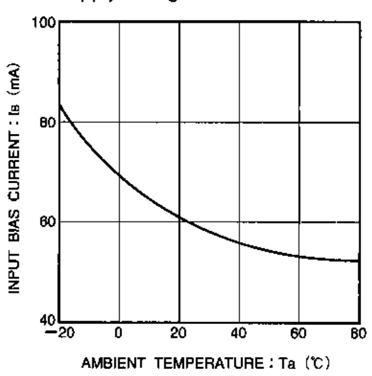


Fig.5 Input bias current - ambient temperature characteristic

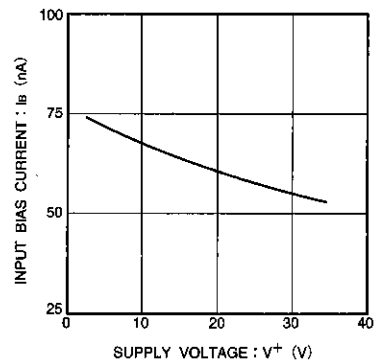


Fig.6 Input bias current - power supply voltage characteristic

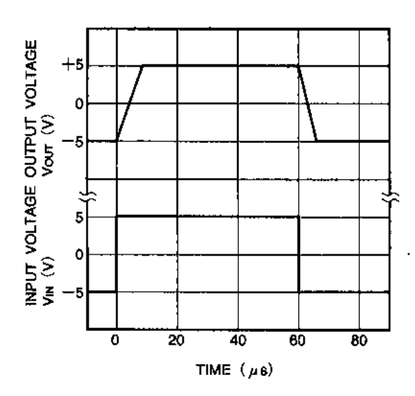


Fig.7 Output response characteristic

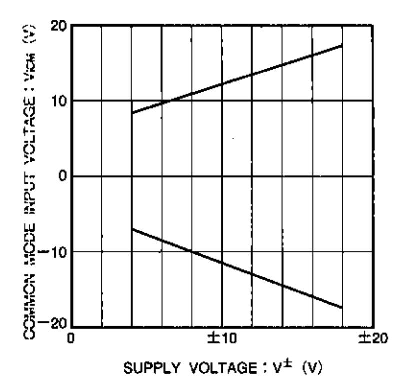


Fig.8 Common mode input voltage - power supply voltage characteristic

●Operation notes

• Unused circuit connections

If there are any circuits which are not being used, we recommend making connections as shown in Figure 9, with the non-inverted input pin connected to the potential within the in-phase input voltage range (V_{ICM}).

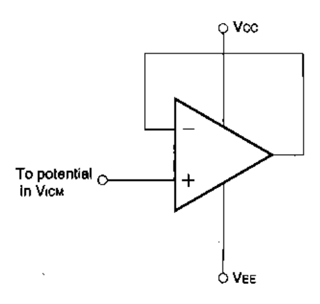


Fig.9 Unused circuit connections

●External dimensions (Units: mm)

